

## ABSTRACT OF THE DISCLOSURE

An air-fuel ratio sensor includes a sensor element inserted through a cylindrical housing for detecting an air-fuel ratio in an atmosphere of unburnt gas, and a measured gas side cover disposed on an end of the cylindrical housing so as to cover the sensor element and defining an inside chamber for storing therein a gas to be measured. The cover has a nested structure composed of a plurality of cup-shaped cover members disposed one inside another, each cover member having a gas inlet hole formed in a side wall thereof and a bottom hole formed in a bottom wall thereof. The gas inlet hole of an innermost one of the plural cover members that directly faces the sensor element is offset from an air-fuel ratio detecting portion of the sensor element toward the housing in an axial direction of the sensor.